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I, JULIE BILLINGSLEY, TEAM LEADER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. PR 4013 for a patent by COACH FLANNIGAN ENTERPRISES PTY LTD filed on 27 March 2001.

WITNESS my hand this
Sixteenth day of April 2002

J. Billingsley

JULIE BILLINGSLEY
TEAM LEADER EXAMINATION
SUPPORT AND SALES

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AUSTRALIA

Patents Act 1990

PROVISIONAL SPECIFICATION

Invention Title: "DEVICE FOR LUBRICATION AND/OR STORAGE OF AN INFLATION NEEDLE"

The invention is described in the following statement:

DEVICE FOR LUBRICATION AND/OR STORAGE OF AN INFLATION NEEDLE

Field of the Invention

The present invention relates to (a) inflation of inflatable articles such as inflatable footballs, soccer balls and the like which are inflated by insertion of an inflation needle through a valve of the aforementioned inflatable articles, and (b) storage of inflation needles.

Background to the Invention

Regarding (a), inflatable articles such as inflatable footballs, soccer balls and the like are typically inflated via a valve which is designed to prevent the escape of gas from within the inflatable article both while the inflatable article is being inflated and after inflation. The valve therefore has to seal against an external cylindrical surface of an inflation needle which has been inserted therethrough for the purpose of inflating the inflatable article. The valves of inflatable articles are typically formed of a rubber like compound and because they are required to seal against an external cylindrical surface of an inflation needle during inflation of the inflatable article it is typically difficult to insert an inflation needle into an inflatable article.

British Patent specification GB2138015A addresses the problem regarding the difficulty of insertion of an inflation needle into an inflatable article by the provision of an alternative valve. The alternative valve is designed to self lubricate a passage through which an inflation needle is inserted upon withdrawal of the inflation needle from the passage. The self-lubrication makes it easier for subsequent insertion of an inflation needle.

US patent 4043356 has addressed the problem of insertion of an inflation needle into an inflatable article by providing an alternative inflation needle. The alternative inflation needle is made from a material which

includes a lubricant to assist entry of the inflation needle into an inflatable article.

In order to address the problem of insertion of an inflation needle into an inflatable article it is therefore necessary to either use an inflatable article which includes the alternative valve of GB2138015A or use the alternative inflation needle of US4043356. It is therefore desirable to address the problem of insertion of an inflation needle into an inflation article without reliance upon an inflation needle or valve which has been specifically designed to make passage of an inflation needle through an inflation valve easier.

Regarding (b), inflation needles can be vulnerable to damage or breakage either when attached to a pump or when removed from the pump and stored in a location and/or manner in which they may be damaged or broken. Inflation needles are typically sold in a disposable package which is formed of cardboard and plastic and are sometimes sold in pairs. If the disposable package is broken for removal of one of the pair of inflation needles, the remaining inflation needle can be easily lost and/or damaged.

It is therefore desirable to provide a device which is suitable for storing one or more inflation needles so that an inflation needle can be removed from a pump after inflating an inflatable article and stored in such a device so that after using the inflation needle and associated pump, the inflation needle is not extending from a pump and vulnerable to being damaged or broken. It is also desirable to provide a device which is suitable for storage of one or more inflation needles so that in the event that an inflation needle is damaged or broken it can be replaced by a new inflation needle. It is also desirable that the device stores an inflation needle in such a way that it can be stored and accessed quickly and easily.

Summary of the Invention

In a first aspect the present invention provides

a container adapted for lubricating an external longitudinal surface of an inflation needle which is suitable for inflating containers having a resiliently flexible, substantially gas tight valve, the container comprising an opening for passage therethrough of at least a portion of the longitudinal length of an inflation needle, in a direction substantially aligned with a longitudinal length of the inflation needle, and closure means for at least substantially preventing passage of a liquid or solid lubricant through said opening, the closure means being movable from a closed position which at least substantially prevents passage of liquid or solid lubricant through the opening, to an open position to allow said passage of an inflation needle through the opening wherein the closure means is arranged to allow equilibration of gas pressure within the container with the gas pressure external of the container and substantially prevent passage of liquid or solid lubricant through said opening while an inflation needle is inserted through said opening of the container.

The closure means may comprise a cover which is arranged to attach to a mouth of the container which forms said opening, at least a portion of the cover being removably attached to the container.

The cover may comprise a lid.

The closure means may comprise a resiliently flexible sealing member which is arranged to at least partially seal against a mouth of the container which forms the opening.

The closure means may comprise a valve.

The valve may be attached to the mouth of the container.

The valve may be at least partially removeably attached to the mouth of the container.

The valve may include a groove formed between two outwardly projecting flanges, the outwardly projecting flanges being arranged to abut outer and inner surfaces of

a wall of the inflatable article, adjacent the mouth of the inflatable article when the valve is attached to the mouth of the inflatable article, the groove being arranged to locate adjacent an edge of the mouth.

The valve may further include a resiliently flexible flap which is arranged to, in use, move toward an inside of the container to provide an opening in the valve for passage therethrough of an inflation needle and upon withdrawal of the inflation needle from the article, the flap being arranged to move to said closed position and at least partially sealing engage a portion of the valve.

The valve may be arranged to move to the at least partially open position by application of a predetermined force to the resiliently flexible flap.

The valve may include a grommet formed of resiliently flexible material which may include rubber or a rubber like compound.

The container may be at least partially filled with a liquid and/or solid lubricant.

The container may be at least partially filled with lubricant absorbent material which is arranged to absorb and therefore disperse a liquid lubricant throughout at least part of the internal volume of the container.

The lubricant absorbent material may include wadding.

Alternatively, the container may include particles which are arranged to fill at least a portion of the internal volume of the container and disperse liquid and/or solid lubricant throughout at least a portion of the internal volume of the container.

The particles may be silicone beads.

Approximately 75% of the internal volume of the container may be filled with silicone beads.

The silicone beads may be substantially spherical.

The particles are preferably arranged to fill approximately three-quarters of the internal volume of the

container.

The liquid absorbent material is preferably arranged to fill greater than 50% of the internal volume of the container.

The container may include lubricating particles which at least partially include a solid lubricant.

The lubricating particles may be at least partially formed of silicone.

The lubricating particles may be resiliently flexible lubricating particles.

The lubricating particles may be substantially spherical and have a minimum diameter which is greater than the diameter of said opening of container, the lubricating particles being resiliently flexible to facilitate passage through the opening of the container.

In a second aspect the present invention provides a container adapted for lubricating an external longitudinal surface of an inflation needle which is suitable for inflating containers having a resiliently flexible substantially gas tight valve, the container comprising an opening for passage therethrough at least a portion of the longitudinal length of an inflation needle, in a direction substantially aligned with a longitudinal length of the inflation needle, the container being arranged to contain a plurality of lubricating particles formed at least partially of a solid lubricant wherein a mouth of the container which forms said opening is of such a size that said particles do not pass through said opening, the container including opening and closing means for opening the container to enable the container to be at least partially filled with the lubricating particles and subsequently closing the container.

The opening and closing means may comprise a divided container which is arranged to open and close via a hinge, the opening and closing means further including locking means for locking the container in the closed positioned.

In a third aspect the present invention provides a container and associated lubricating particles formed at least partially of a solid lubricant, the container being adapted for lubricating an external longitudinal surface of an inflation needle which is suitable for inflating containers having a resiliently flexible substantially gas tight valve, the container comprising an opening for passage therethrough of at least a portion of the longitudinal length of an inflation needle, in a direction substantially aligned with a longitudinal length of the inflation needle, the container being at least partially filed with the plurality of lubricating particles wherein a mouth of the container which forms said opening is of such a size that said particles do not pass through said opening.

In a fourth aspect the present invention provides a container for lubricating an external longitudinal surface of an inflation needle which is suitable for inflating containers having a resiliently flexible gas tight valve, the container comprising an opening for passage therethrough of at least a portion of the longitudinal length of an inflation needle, in a direction substantially aligned with a longitudinal length of the inflation needle, the container being arranged to contain a plurality of resiliently flexible lubricating particles formed at least partially of a solid lubricant wherein a mouth of the container which forms the opening in the container is arranged to prevent passage therethrough of a resiliently flexible lubricating particle without the application of a predetermined force.

In a fifth aspect the present invention provides a resiliently flexible lubricating particle formed at least partially of a solid lubricant, the resiliently flexible lubricating particle being arranged for passage through an opening of the container of the fourth aspect of the present invention, when forced therethrough by application of a predetermined force.

An external surface of the resiliently flexible lubricating particles may at least partially include a solid lubricant.

The resiliently flexible lubricating particles may be substantially spherical.

In a sixth aspect the present invention provides an inflation needle storage device comprising a body having a passage which extends at least partly through the body, the passage being arranged for receipt of an inflation needle which is suitable for inflating containers having a resiliently flexible, substantially gas tight valve, the passage being arranged to receive the inflation needle so that a longitudinal axis of the inflation, when appropriately received within the passage, is substantially aligned with a longitudinal axis of the passage, the body including resiliently flexible retaining means which is arranged to surround at least a portion of the passage, the resiliently flexible retaining means being arranged to resiliently deform upon insertion of the inflation needle into the passage so that it applies a predetermined force to an external surface of an inflation needle when it is inserted into the passage to result in the inflation needle being retained within the passage until predetermined forces are applied to the inflation needle and body to remove the inflation needle from the passage.

The passage may extend through the body.

The passage may comprise an elongated tubular passage.

The elongated tubular passage may be substantially circular in cross section.

The body may comprise a resiliently flexible material which is solid except for the passage which extends into or through the body.

The body may be cylindrical in shape.

The passage may be orientated relative to the body so that a longitudinal axis of the passage is substantially aligned with a longitudinal axis of the body.

The passage may have a diameter which when undeformed is larger than the diameter of a portion of an inflation needle which is designed for passage through a resiliently flexible, substantially gas tight valve of a container which is designed for inflation with an inflation needle and the smaller than an enlarged end of said inflation needle.

The body may include a plurality of said passages.

The body may have another passage, the other passage being larger in diameter than the passage and being arranged for passage of a flexible elongated member therethrough, the body being arranged to hang from a lower end of the flexible elongated member when an upper end of the flexible elongated member is supported a sufficient distance above the ground.

In a seventh aspect the present invention provides an inflation needle storage device comprising a body having clamping means for clapping an inflation needle which is suitable for inflating containers having a resiliently flexible, gas tight valve relative to the body, the clamping means extending from the body and being arranged to move between a closed position in which an inflation needle is clamped between the clamping means and a portion of the body and an open position in which the inflation needle can be removed from the storage device, the clamping means being arranged to clamp an inflation needle around an enlarged region of the inflation needle which is proximal an end of an inflation needle which is adapted to threadably engage a pump.

The body of the inflation needle storage device of the seventh aspect of the present invention and the clamping means preferably have corresponding indentations which are arranged to at least partially enclose the enlarged section of an inflation when the clamping means is in the closed position so that substantially movement of an inflation is prevented in a direction which is

substantially aligned with a longitudinal axis of the inflation needle.

The inflation needle storage device of the seventh aspect of the present invention may further comprise detent means which is arranged to detain the clamping means in the closed position.

The clamping means may comprise an arm which is pivotable relative to the body.

The inflation needle storage devices of the sixth and seventh aspects of the present invention may each be suitable for use with the container of the first, second, third, or fourth aspects of the present invention.

The inflation needle storage device of the sixth and seventh aspects of the present invention, and the container of the first, second, third or fourth aspects of the present invention, may each include corresponding attachment means for attachment of the inflation needle storage devices of the sixth and seventh aspects of the present invention and the container of the first, second, third or fourth aspects of the present invention together.

In the preceding summary of the invention, except where the context requires otherwise, due to express language or necessary implication, the words "comprising", "comprises" or "comprise" are used in the sense of "including", that is the features specified may be associated with further features in various embodiments of the invention.

Brief Description of the Drawings.

A preferred embodiment of the present invention will now be described, by way of example only, with reference to the following drawings in which:

Figure 1 is a perspective view of one example of an inflation needle lubricating container of the present invention formed in the shape of a football;

Figure 2 is a side elevational view of the football shaped inflation needle lubricating container of

Figure 1;

Figure 3 is a plan view of the container of Figure 1;

Figure 4 is a longitudinal sectional view of the container of Figure 1 along line a-a of Figure 1;

Figure 5 is a plan view of a rubber grommet of the container of Figure 1;

Figure 6 is side elevational view of the rubber grommet of Figure 5;

Figure 7 is a sectional view of the rubber grommet of Figure 5 through line b-b of Figure 5;

Figure 8 is a longitudinal sectional view similar to that of Figure 4 which includes a longitudinal sectional view of one example of a pump and associated inflation needle with the inflation needle positioned external of the container and near the rubber grommet;

Figure 9 is a longitudinal sectional view of the container, and associated pump and inflation needle of Figure 8 with the inflation needle inserted through the rubber grommet and into the container;

Figure 10 is a perspective view of one example of an inflation needle storage device;

Figure 11 is a longitudinal sectional view through line A-A of Figure 10;

Figure 12 is a plan view of the device of Figure 10;

Figure 13 is a perspective view of the device of Figure 10 with a cord inserted through a central bore of the device of Figure 10 which extends entirely through the inflation needle storage device of Figure 10;

Figure 14 is a perspective view of the inflation needle storage device similar to that of Figure 13 with four inflation needles inserted into four outer bores of the inflation needle storage device of Figure 13.

Best Mode for Carrying out the Invention

Referring to Figures 1-6, the inflation needle lubricating container 10 generally comprises a football

shaped container 12 having an opening 14 and an attachment lug 16. The inflation needle lubricating container 10 also includes a cord 18 which is attached to the inflation needle lubricating container 10 via the attachment lug 16. The cord 18 can, for example, be worn around a neck of a user and can also be used to enable the inflation needle lubricating container 10 to be hung up in a convenient location near a pump and associated inflation needle.

The football shaped container is hollow and, referring to Figure 8 is filled with wadding 20. The wadding 20 is designed to generally fill the internal volume of the container 12. After the container 12 has been generally filled with wadding 20, a liquid lubricant (not shown) is poured into the container 12, through the opening 14. The liquid lubricant which is poured into the container 12 is absorbed by the wadding 20. The wadding therefore ensures that the liquid lubricant is dispersed throughout the container 12.

Referring to Figures 1-8, the container is orientated so that its longitudinal axis extends upwardly. The opening 14 is positioned near an upper end of the container 12. Referring to Figure 4, the opening 14 is formed by a mouth 22 of the container 12. A rubber grommet 24 (see Figure 5-7) is attached to the mouth 22 of the container 12. The rubber grommet 24 is a generally donut shaped rubber grommet that includes a groove 26 having a square shaped cross section which extends around an outer surface of the rubber grommet 24 so that the groove 26 is substantially aligned with a longitudinal axis of the generally tubular donut shaped region of the rubber grommet 24. The groove 26 is designed to receive an edge 28 of the mouth 22 of the container 12. A central cylindrical blind hole 30 of the generally donut shaped rubber grommet 24 is prevented from extended laterally through the rubber grommet 24 by a circular rubber sheet 32 which extends from an inner cylindrical surface 34 of the rubber grommet 24. The circular rubber sheet 32 is attached to the inner

cylindrical surface 34 so that it extends across one end of the cylindrical hole 30. The circular rubber sheet 32 is attached to less than two thirds of the circumferential length around the inner cylindrical surface 34. An unattached region 42 (see Figure 6) is therefore free to resiliently flex away from the inner cylindrical surface 34 to provide an opening through the circular rubber sheet 32.

The rubber grommet 24 is attached, via the groove 26 to the mouth 22 of a container 12 so that the circular rubber sheet 32 is positioned inside the wall of the container 12. Referring to Figure 9, by inserting an inflation needle 36 of a pump 38 into the cylindrical hole 30, an end 40 of the inflation needle 36 forces the unattached region 42 (see Figure 5) of the circular rubber sheet 32 into the container 12 to provide an opening for passage therethrough of the inflation needle 36. In passing through the rubber grommet 24 the inflation needle 36 passed into the wadding 20. This results in an outer cylindrical surface of the inflation needle 36 being coated with lubricant. Withdrawal of the inflation needle 36 from the container 12 results in the unattached region 42 of the rubber grommet 24 resuming its initial position where it seals against the inner cylindrical surface 34 of the rubber grommet 24 (see Figures 7 and 8). After withdrawal of the inflation needle 36 from the container 12 it is lubricated and ready for insertion through a valve of an inflatable article. When the unattached region 42 of the circular rubber sheet 32 is in the closed position of Figures 7 and 8 it generally seals against the inner cylindrical wall 34 of the rubber grommet 24 to prevent the passage of lubricant through the opening 14 of the container 12.

Referring to Figures 10-14, one example of an inflation needle storage device 42 comprises a cylindrical object 44 which is formed of high density foam rubber and five bores 46, 48, 50, 52 and 54 which have longitudinal axes that are approximately aligned with a longitudinal

axis of the cylindrical object 44. The bores 46-54 extend from an upper end of the cylindrical object 44, entirely through the longitudinal length of the cylindrical object 44 to a lower end. The bores 46-54 therefore exit either ends of the cylindrical object 44 via the upper and lower end surfaces 56 and 58 respectively of the cylindrical object 44.

The central bore 46 is positioned within the cylindrical object 44 so that its longitudinal axis approximately coincides with a longitudinal axis of the cylindrical object 44. The bores 48-54 are positioned around the central bore 46 so that the axis of each of the bores 46-54 are substantially aligned and so that each of the bores 48-54 are approximately the same distance from the central bore 46. The bores 48-54 are positioned slightly closer to an outer cylindrical surface of the cylindrical object 44 than the central bore 46.

Referring to Figure 9, the diameters of the bores 48-54 are greater than the diameter of the end 40 of the inflation needle 36 and less than the diameter of an enlarged end 60 of the inflation needle 36. An inflation needle 36 can be stored in one of the bores 48-54 of the cylindrical object 44 by inserting the end 40 of the inflation needle 36 of Figure 9 into an upper end of one of the bores 48-54. By inserting the end 40 of the inflation needle downwardly, along the longitudinal length of one of the bores 48-54, the end 60 of the inflation needle 36 abuts the upper end surface 56 of the cylindrical object 44. By applying downward pressure to the upper end 60 of the inflation needle 36 an upper end of one of the bores 48-54 is deformed and enlarged. Such deformation of the bore into which the inflation needle 36 is inserted results in the high density foam rubber material of the cylindrical object 44 contracting around the upper end 60 of the inflation needle 36 to grip the inflation needle 36 and hold it firmly within the cylindrical object 44.

The diameter of the central bore 46 is greater

than the diameter of the bores 48-54 and is designed to enable passage therethrough of the cord 18 of Figure 1. By inserting the cord 18 through the central bore 46 of the cylindrical object 44, the cylindrical object 44 can be slid along the length of the cord 18 until it contacts a clip 62 (see Figure 1) which extends from the cord 18. The cylindrical object 44 is therefore positioned near the clip 62 and football shaped container 12 so that when the cord 18 is positioned around a neck of a user of the inflation needle lubricating container 10, the inflation needle storage device 42 and inflation needle lubricating device 10 hang downwardly. An object such as a piece of wire having a hook extending from one end which is suitably dimensioned for passage through the central bore 46 may be useful for drawing the cord 18 through the central bore 46.

DATED this Twenty-seventh day of March 2001

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by its Patent Attorneys

~~FISHER ADAMS KELLY~~

Freehills Carter Smith Beadle

AUSTRALIAN PATENT OFFICE REG 22.10 (2)

AUSTRALIAN PATENT OFFICE SEC 104

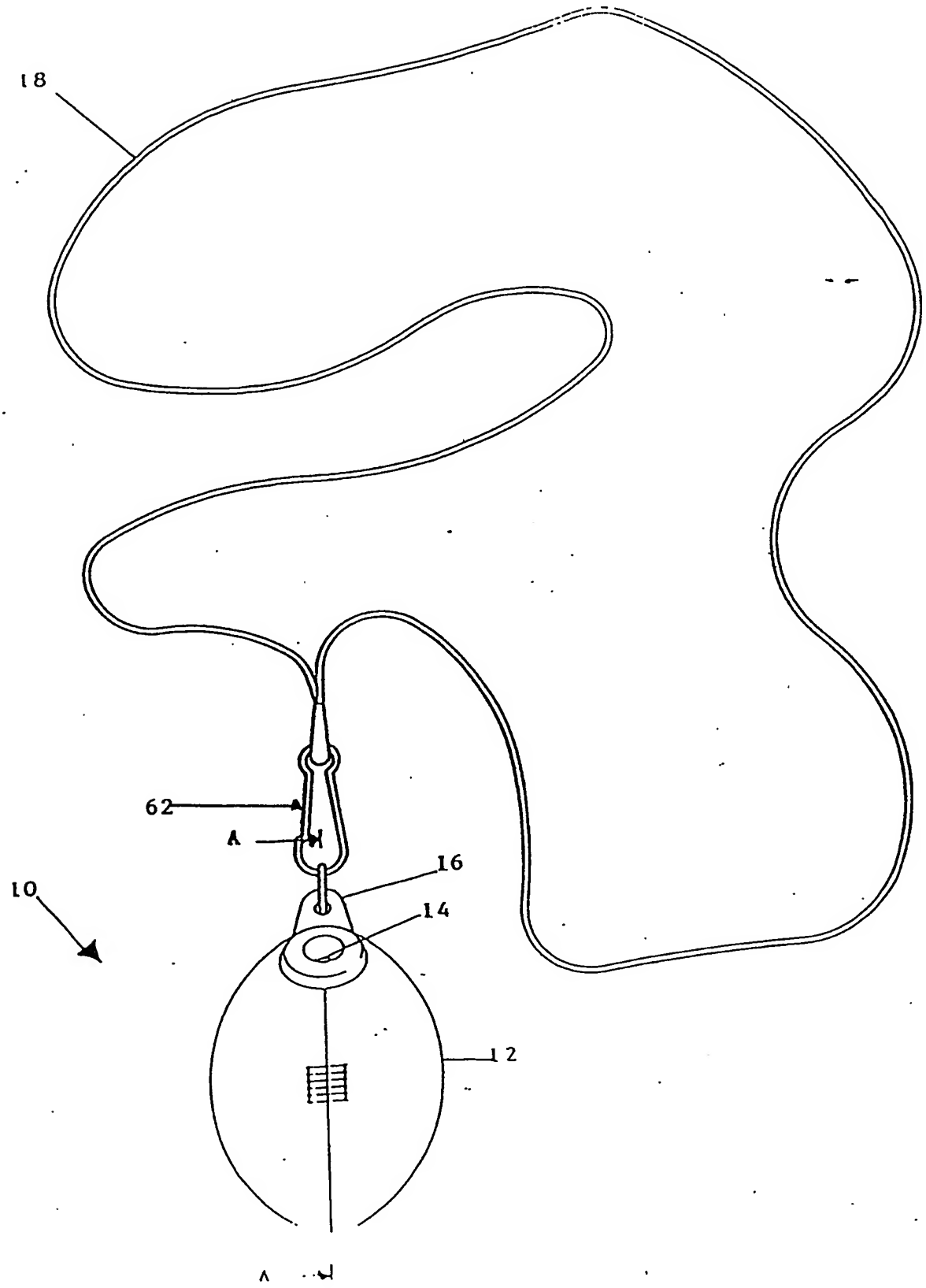

FIGURE 1

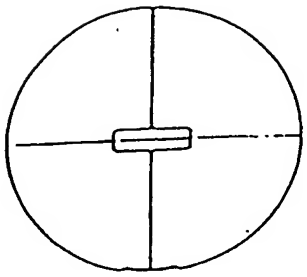

FIGURE 3

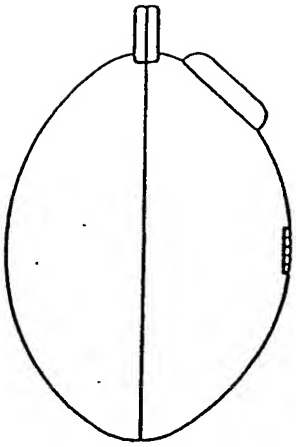

FIGURE 2

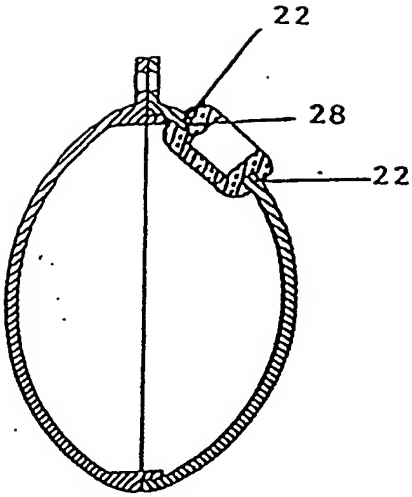

FIGURE 4

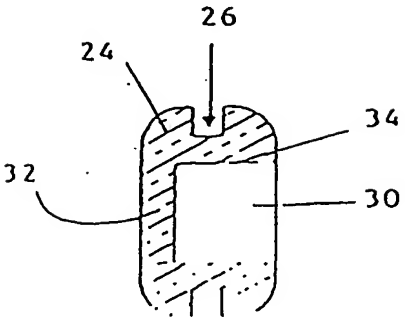

FIGURE 7

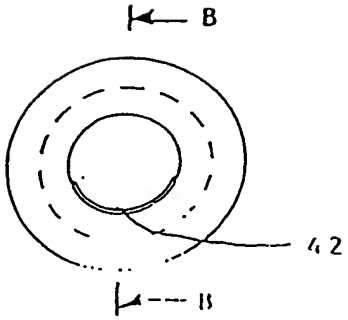

FIGURE 5

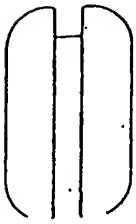

FIGURE 6

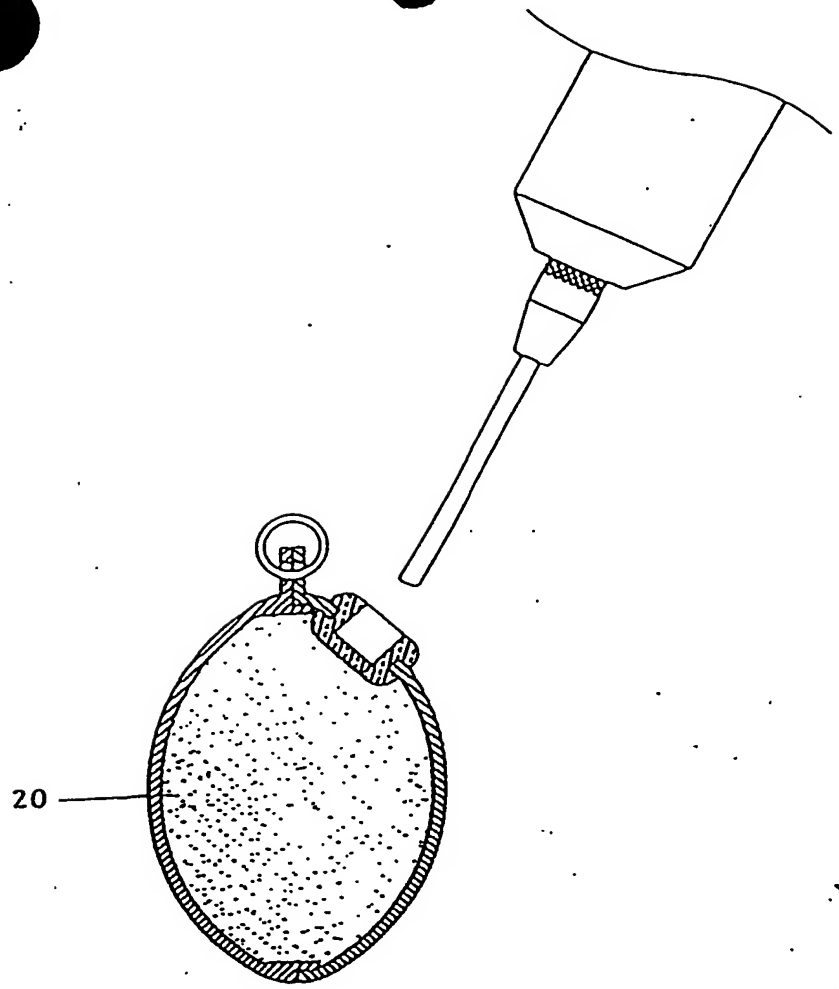

FIGURE 8

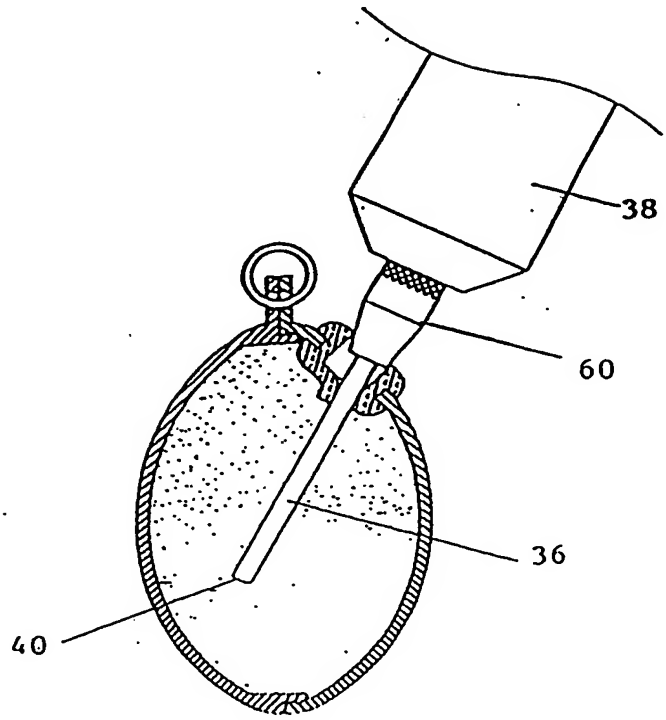

FIGURE 9

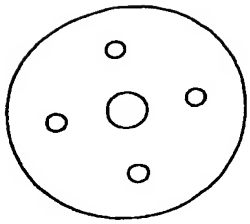

FIGURE 12

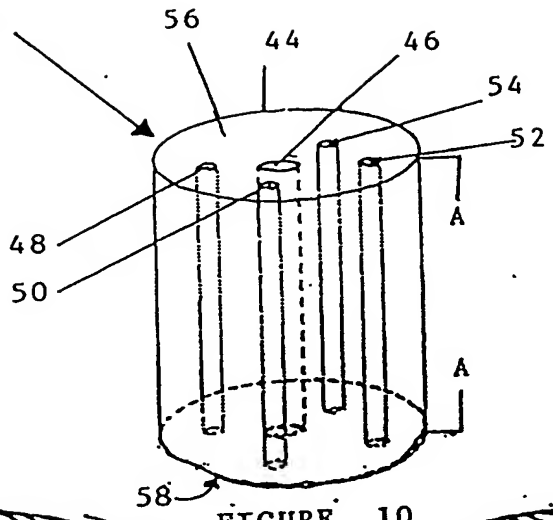

FIGURE 10

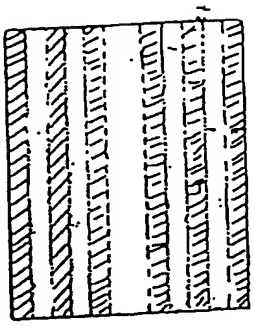

FIGURE 11

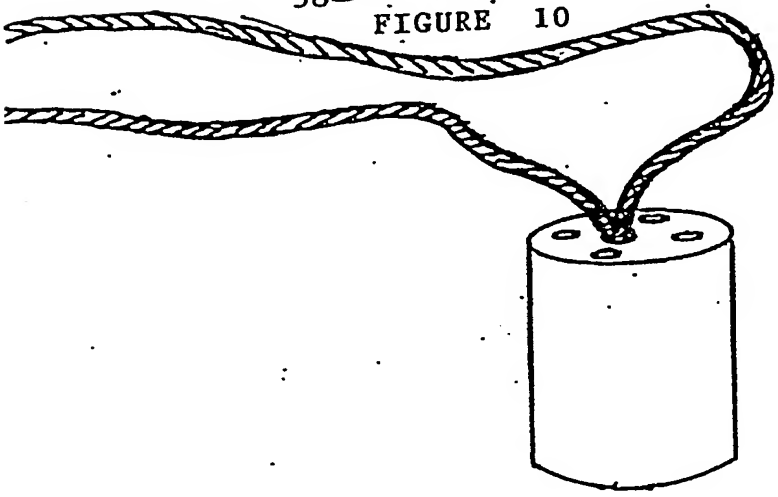

FIGURE 13

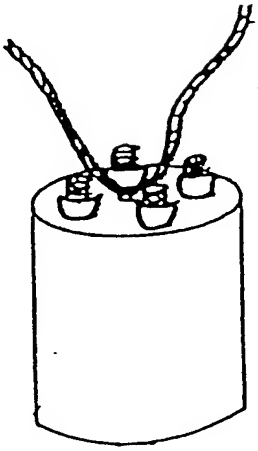

FIGURE 14